

What is claimed is:

1. Apparatus for heat welding to each other two overlapping thermoplastic membranes mounted on a surface, the apparatus comprising:

a frame having drive wheels mounted thereon for locomotion of
said frame;

a support member connected to said frame;

a nozzle mounted on said support member and adapted to
receive heated air from a heat source mounted on said
frame, said nozzle being adapted to direct the heated
air to a weld location between the two membranes;

weld wheels mounted on said support member and mounted
adjacent to, and in operation immediately following,
said nozzle for pushing a heated portion of the upper
one of the membranes toward the underlying membrane to
effect a weld;

wherein said support member is adapted to be fixed to said
frame member in a first position proximate a first side
of said frame for welding the two membranes together,

is adapted for release from the first position, is movable on said frame to a second position nearer a second side of said frame, and adapted to be releasably fixed to said frame at the second position for welding one of the membranes to an underlying edge piece mounted on a free edge of the surface.

2. The apparatus in accordance with claim 1 wherein said nozzle and said weld wheel means are movable from a fixed position proximate the one side of said frame toward the second side of said frame for releasable fixation in a position nearer the second side of said frame.

3. The apparatus in accordance with claim 2 wherein said nozzle and said weld wheel means are movable widthwise of the apparatus.

4. The apparatus in accordance with claim 3 and further comprising a rod fixed in said frame and extending widthwise thereof, a portion of said support member being slidably mounted on said rod.

5. The apparatus in accordance with claim 4 and further comprising a lock structure for releasably locking the support member portion on said rod at a selected location.

6. The apparatus in accordance with claim 3 and further comprising a weight member selectively mountable on said support member for welding the two membranes together and on said frame for the welding of one of the membranes to the underlying edge piece.
7. The apparatus in accordance with claim 1 wherein one of said weld wheels further comprises a drive wheel.
8. The apparatus in accordance with claim 1 wherein the drive wheels are mounted side by side on a single axle in said frame.
9. The apparatus in accordance with claim 8 wherein one of the drive wheels is movable from a fixed position proximate one side of said frame toward the second side of said frame, the one drive wheel being releasably fixable in a second position nearer the second side of said frame.
10. The apparatus in accordance with claim 9 wherein the drive wheel second position is proximate a mid-portion of the axle.
11. The apparatus in accordance with claim 9 wherein another of the drive wheels is disposed proximate an inboard end of the axle.

12. A method for welding an edge of a thermoplastic membrane to an angle piece fixed on a free edge of a surface to which thermoplastic membranes are being attached, the method comprising the steps of:

providing an apparatus for heat welding to each other two overlapping thermoplastic membranes mounted on a surface, the apparatus comprising:

a frame;

a support member connected to said frame;

a nozzle mounted on said support member and adapted to direct heated air to a weld location beneath an upper one of the membranes;

weld wheels mounted on said support member adjacent to, and in operation immediately following, said nozzle for pushing a heated portion of the upper one of the membranes toward the underlying one of the membranes to effect a weld;

wherein said support member is adapted to be fixed to said frame member in a first position proximate a

first side of said frame for welding the two
membranes together;

releasing said support member from the first position;

moving said support member from the first position to a
second position on said frame nearer a second side of
said frame;

releasably fixing said support member on said frame in the
second position;

placing an angle piece on the surface free edge, the angle
piece having a coating of a plastics material on an
upper surface thereof; and

moving the apparatus along the edge of one of the
thermoplastic membranes with said nozzle disposed
between the one thermoplastic membrane and the coating
on the angle piece,

whereby to weld the thermoplastic membrane edge to the angle
piece upper surface.

13. The method in accordance with claim 12 wherein the apparatus further comprises drive wheels mounted on an axle disposed in said frame, a first of the drive wheels being mounted on the axle proximate an inboard end of the axle, and a second of the drive wheels being releasably fixed on the axle proximate an outboard end of the axle, the method comprising the further step of moving the second drive wheel on the axle toward the first drive wheel and releasably fixing the second drive wheel nearer the first drive wheel.

14. The method in accordance with claim 13 wherein the step of releasably fixing the second drive wheel comprises fixing the second drive wheel proximate a mid-portion of the axle.

15. The method in accordance with claim 12 wherein the apparatus further comprises weights mounted on said support member, and the method includes the further step of removing one of said weights from said support member, and attaching the removed weight to an inboard portion of said frame.

16. The method in accordance with claim 12 wherein the step of moving said support member comprises moving said support member widthwise of said frame.

17. The method in accordance with claim 13 wherein the step of moving the second drive wheel comprises moving the second drive wheel widthwise of said frame.

18. The method in accordance with claim 12 wherein the second position on said frame comprises a mid-portion of said frame.

19. The method in accordance with claim 12 wherein the step of moving the apparatus along the edge of the one thermoplastic membrane further comprises moving said weld wheels serially along the edge of the one thermoplastic membrane to press the one thermoplastic membrane against the coating on the angle piece upper surface.

20. The method in accordance with claim 17 wherein the step of moving the second drive wheel comprises moving the second drive wheel to a mid-portion of the axle.

21. Apparatus for heat welding to each other two overlapping thermoplastic membranes mounted on a surface and for heat welding one of the membranes to an angle piece disposed on a free edge of the surface, the apparatus comprising:

drive wheels for providing for locomotion of the apparatus
and adapted to be disposed in a first location on the

apparatus for the welding of the two overlapping membranes to each other; a nozzle adapted to be disposed in a first location on the apparatus for directing heated air to a weld area between the two membranes; and

weld wheels adapted to be disposed in a first location on the apparatus for the welding of the two membranes to each other;

at least one of said drive wheels, said nozzle, and said weld wheels each being movable to a second location on the apparatus for the welding of the one membrane to the angle piece.

22. A method for heat welding to each other two overlapping thermoplastic membranes mounted on a surface and for heat welding one of the membranes to an angle piece mounted on a free edge of the surface, the method comprising the steps of:

laying the two membranes on the surface such that edge portions of the two membranes overlap;

providing an apparatus comprising:

drive wheels for providing for locomotion of the apparatus and adapted to be disposed in a first location on the apparatus for the welding of the two overlapping membranes to each other;

a nozzle adapted to be disposed in a first location on the apparatus for directing heated air to a weld area between the two membranes; and

weld wheels adapted to be disposed in a first location on the apparatus for the welding of the two membranes to each other;

at least one of said drive wheels, said nozzle, and said weld wheels each being movable to a second location on the apparatus for the welding of the one membrane to the angle piece;

placing said drive wheels, nozzle, and weld wheels in the first location thereof;

moving the apparatus along the overlap of the two membranes, such that said nozzle directs heated air between the two membranes and said weld wheels thereafter press the two membranes firmly together;

placing the angle piece on the free edge of the surface;

moving said at least one drive wheel, nozzle, and weld wheels
to their second locations; and

moving the apparatus along an outboard edge of the one
membrane such that said nozzle directs heated air
between the one membrane and the angle piece and said
weld wheels thereafter press the one membrane and the
angle piece firmly together.